WHAT IS CLAIMED IS:

1. A multi-stranded micro-cable for use in interventional therapy and vascular surgery, comprising:

a plurality of flexible strands of a resilient material; said micro-cable including at least one radiopaque strand to provide a radiopaque marker.

2. The multi-stranded micro-cable of Claim 1, wherein at least one radiopaque strand comprises an axially disposed radiopaque wire.

3. The multi-stranded micro-cable of Claim 1 wherein at least one of said plurality of flexible strands of a resilient material are comprised of a super-elastic material.

4. The multi-stranded micro-cable of Claim 3 wherein at least one of said super-elastic material comprises a nickel titanium alloy.

5. The multi-stranded micro-cable of Claim 1 wherein at least one of said plurality of flexible strands of a resilient material are comprised of a shape memory material.

6. The multi-stranded micro-cable of Claim 5 wherein said shape memory material comprises a nickel-titanium alloy.

7. The multi-stranded micro-cable of Claim 5 wherein said shape memory material comprises a shape memory polymer.

8. The multi-stranded micro-cable of Claim 1 wherein said plurality of flexible strands further comprise a central core wire, said plurality of flexible strands are twisted about said central core wire, and at least one of said twisted strands comprising a radiopaque strand.

9. The multi-stranded micro-cable of Claim 1 wherein said plurality of flexible strands further comprises a plurality of flexible strands twisted about a central core wire, said central core wire being made of a radiopaque material.

10. The multi-stranded micro-cable of Claim 1 wherein said radiopaque strand comprises a material selected from the group consisting of platinum, gold, and tungsten.

11. The multi-stranded micro-cable of Claim 5 wherein said radiopaque strands comprise a plurality of strands of said micro-cable, at least one of said plurality of radiopaque strands arrayed in the outer twisted strands of said cable.

12. The multi-stranded micro-cable of Claim 1, further comprising at least one strand of a therapeutic material.

13. The multi-stranded micro-cable of Claim 12 wherein said strand of therapeutic material is selected from the group consisting of hydrogel and human growth hormone.

14. The multi-stranded micro-cable of Claim 1, further comprising a sheath to constrain said strands of said micro-cable about a longitudinal axis.

15. The multi-stranded micro-cable of Claim 14 wherein said sheath comprises a containment strand wound about said longitudinal strands.

16. The multi-stranded micro-cable of Claim 14 further comprising an outer flexible sheath of low friction material.

17. The multi-stranded micro-cable of Claim 16 wherein said outer sheath comprises a fluoropolymer.

18. The multi-stranded micro-cable of Claim 14 wherein said sheath comprises a heat shrinkable plastic tube.

19. A multi-stranded micro-cable for use in interventional therapy and vascular surgery comprising:

a plurality of flexible strands made of a resilient material helically wound around a central core, said central core comprising an axially placed therapeutic substance.

20. The multi-stranded micro-cable of Claim 19 wherein said therapeutic substance includes one or more of components from the group of hydro-gel, collagen, bio-absorbable polymers such as lactic acids/glycolic acids and capro lactam.

21. The multi-stranded micro-cable of Claim 19 wherein said cable further comprises at least one of said strands of resilient material being a radiopaque strand to provide a radiopaque marker during a therapeutic procedure.

22. The multi-stranded micro-cable of Claim 19 wherein at least one of said flexible strands of the wire made of resilient material further comprises a shaped memory or super-elastic material.

23. The multi-stranded micro-cable of Claim 19 wherein said shaped memory or super-elastic material further comprises a nickel titanium alloy.

24. The multi-stranded micro-cable of Claim 19 wherein said therapeutic material further comprises material to promote human cell growth.

25. The multi-stranded micro-cable of Claim 19 wherein said therapeutic substance core is a fiber such as Dacron (polyester), polyglycolic acid, polylactic acid, fluoropolymers, nylons, polyaramid fiber kevlar or silk chosen for thrombogenicity.

26. The multi-stranded micro-cable of Claim 19 further comprising replacing at least one strand in said outer wound strands with a strand of a therapeutic material.

27. The multi-stranded micro-cable of Claim 14 wherein said sheath further comprises a plurality of heat shrink plastic covers placed to provide bending stiffness in said cable which varies with the position on said cable.

28. The multi-stranded micro-cable of Claim 14 wherein said sheath further comprises a sheath which varies in cross section along its length to provide bending stiffness of said cable which varies with the position on said cable.

29. The multi-stranded micro-cable of Claim 14 further comprising at least one longitudinal element for sensing a parameter.

30. The multi-stranded micro-cable of Claim 14 further comprising at least one longitudinal element for providing a therapeutic effect at a location near the distal end of said cable.

31. The multi-stranded micro-cable of Claim 29 wherein said sensing element comprises an optical fiber.

32. The multi-stranded micro-cable of Claim 30 wherein said therapeutic element comprises means to conduct energy.

33. The multi-stranded micro-cable of Claim 32 wherein said means to conduct energy comprises an optical fiber to conduct light energy.

34. A device for use in interventional therapy and vascular surgery, adapted to be inserted into a portion of a vasculature, comprising:

at least one multi-stranded micro-cable having a collapsed primary coil

configuration and an expanded secondary configuration with a three dimensional shape, each said multi-stranded micro-cable having a plurality of flexible strands of a resilient material and at least one radiopaque strand to provide a radiopaque marker of the deployed configuration of the device.

35. The device of Claim 34, wherein said secondary three dimensional shape is selected from the group consisting of generally spherical, generally helical, and generally conical shapes.

36. The device of Claim 34, wherein said plurality of strands are helically wound.

37. The device of Claim 34, wherein said plurality of flexible strands are parallel longitudinal strands.

38. The device of Claim 34, wherein at least one of said plurality of strands comprises a super-elastic material.

39. The device of Claim 38, wherein said super-elastic material comprises a nickel titanium alloy.

40. The device of Claim 34, wherein at least one of said strands comprises a shape memory material.

41. The device of Claim 34, wherein said shape memory material comprises a nickel-titanium alloy.

42. The device of Claim 41, wherein said shape memory nickel-titanium alloy is heat treated such that the alloy is highly flexible at a temperature appropriate for introduction into the body via a catheter, and after placement, the device will take on a shape designed to optimize the therapeutic purposes desired for the device.

43. The device of Claim 34, wherein at least one of the strands comprises a therapeutic agent.

44. The device of Claim 43 wherein said strand comprising a therapeutic agent is wound into said micro-cable so that at least a portion of said strand projects beyond the diameter of the other strands in said cable.

45. The device of Claim 43, wherein said therapeutic agent comprises a fiber selected from the group consisting of Dacron (polyester), polyglycolic acid, polylactic acid, fluoropolymers, nylons, polyaramid fiber, kevlar, silk chosen for thrombogenicity, human growth hormone, genetic material, antigens, hydrogel, collagen, and bio-absorbable polymers including lactic acids, glycolic acids, caprolactam and microcellular foams.

46. The device of Claim 43, wherein said therapeutic agent comprises means to conduct energy.

47. The device of Claim 46, wherein said means to conduct energy comprises an optical fiber to conduct light energy.

48. The device of Claim 43, wherein said therapeutic agent is disposed axially in a central core

49. The device of Claim 34, wherein said plurality of strands comprises a plurality of exterior strands surrounding at least one interior strand.

50. The device of Claim 34, wherein said plurality of strands comprises a plurality of exterior strands surrounding a central core.

51. The device of Claim 34, wherein said radiopaque strand comprises at least one centrally, axially disposed radiopaque wire.

52. The device of Claim 34, wherein said radiopaque wire comprises a radiopaque material selected from the group consisting of platinum, tungsten, and gold.

53. The device of Claim 34, wherein said micro-cable comprises a plurality of radiopaque strands.

54. The device of Claim 34, wherein said strands of the micro-cable are bundled by at least one outer cover to produce a composite banded cable.

55. The device of Claim 54, wherein said outer cover comprises a sheath to constrain said strands of said micro-cable about a longitudinal axis.

56. The device of Claim 54, wherein said outer cover comprises an outer sheath of material to provide bending stiffness and constrain said longitudinal strands about said longitudinal axis.

57. The device of Claim 55, wherein said sheath comprises a containment strand wound about said longitudinal strands.

58. The device of Claim 55, wherein said sheath is made of low friction material.

59. The device of Claim 55, wherein said sheath is made of a fluoropolymer.

60. The device of Claim 55, wherein said sheath comprises a heat shrinkable plastic tube.

61. The device of Claim 55, wherein said sheath comprises a plurality of heat shrink plastic covers placed to provide bending stiffness in said cable which

varies with the position on said cable.

62. The device of Claim 54, wherein said strands of the micro-cable are bundled by a plurality of bands disposed at intervals along said micro-cable to produce a composite banded cable.

63. The device of Claim 61, wherein said strands are laid parallel within the composite banded cable.

64. The device of Claim 55, wherein said strands are twisted within the composite banded cable.

65. The device of Claim 56, wherein said outer cover is wound at varying intervals along the outside to provide variations in the torqueability and stiffness of the composite cable.

66. The device of Claim 56, wherein the width of the outer cover is varied along the composite cable.

67. The device of Claim 54, wherein said outer covering varies in cross section along its length to provide bending stiffness of said composite cable which varies along said composite cable.

68. The device of Claim 54, wherein the number of strands and the degree to which they extend along said composite cable within the outer covering varies along said composite cable.

69. The device of Claim 54, wherein said outer covering comprises a plurality of layers formed of different materials in order to provide a graduated bending and stiffness characteristic over the length of the cable.

70. The device of Claim 54, wherein said composite microcable comprises a plurality of micro-cables disposed within said outer cover in order to provide desired bending and strength characteristics.

71. The device of Claim 70, wherein said plurality of micro-cables are helically wound within said outer cover.

72. The device of Claim 70, wherein said plurality of micro-cables extend parallel and longitudinally within said outer cover.

73. The device of Claim 70, wherein said composite cable has a collapsed primary configuration and an expanded secondary configuration with a secondary shape.

74. The device of Claim 73, wherein said secondary shape is three dimensional.

75. The device of Claim 73, wherein said secondary shape is selected from the group consisting of spherical, helical, and conical shapes.

76. The device of Claim 70, wherein said plurality of micro-cables are bundled by at least one outer cover to produce said composite banded cable.

77. The device of Claim 76, wherein said plurality of micro-cables are banded at intervals by a plurality of bands.

78. The device of Claim 34, further comprising at least one longitudinal element for sensing a parameter.

79. The device of Claim 68, wherein said longitudinal element for sensing a parameter is selected from the group consisting of an optical imaging

element, an optical fiber, a thermal imaging element, and an ultrasound imaging element.

80. A three dimensional composite device having a collapsed coil configuration with a primary shape and an expanded coil configuration with a secondary three dimensional shape for use in interventional therapy and vascular surgery, the device adapted to be inserted into a portion of a vasculature for occluding the portion of the vasculature, comprising:

a plurality of multi-stranded micro-cables having a collapsed coil configuration with a primary shape and an expanded coil configuration with a secondary three dimensional shape, each said multi-stranded micro-cable having a plurality of flexible strands of a resilient material, and at least one said strand being a radiopaque strand to provide a radiopaque marker of the deployed configuration of a device made of the cable during vascular surgery.

81. The three dimensional composite device of Claim 80, said micro-cable further comprising at least one outer cover disposed over at least a portion of said plurality of multi-stranded micro-cables to produce a composite banded cable.

82. The three dimensional composite device of Claim 81, wherein said secondary three dimensional shape is selected from the group consisting of generally spherical, generally helical, and generally conical shapes.

83. The three dimensional composite device of Claim 81, wherein said plurality of strands are helically wound.

84. The three dimensional composite device of Claim 81, wherein said plurality of flexible strands are parallel longitudinal strands.

85. The three dimensional composite device of Claim 81, wherein at least one of said plurality of strands comprises a super-elastic material.

86. The three dimensional composite device of Claim 81, wherein a plurality of said flexible strands are comprised of a super-elastic material.

87. The three dimensional composite device of Claim 81, wherein said super-elastic material comprises a nickel titanium alloy.

88. The three dimensional composite device of Claim 81, wherein at least one of said strands comprises a shape memory material.

89. The three dimensional composite device of Claim 81, wherein a plurality of said flexible strands of a resilient material are comprised of a shape memory material.

90. The three dimensional composite device of Claim 89, wherein said shape memory material comprises a nickel-titanium alloy.

91. The three dimensional composite device of Claim 89, wherein said shape memory nickel-titanium alloy is heat treated such that the alloy is highly flexible at a temperature appropriate for introduction into the body via a catheter, and after placement, the device will take on a shape designed to optimize the therapeutic purposes desired for the device.

92. The three dimensional composite device of Claim 89, wherein said shape memory material comprises a shape memory polymer.

93. The three dimensional composite device of Claim 81, wherein at least one of the strands comprises a therapeutic agent selected from the group consisting of a fiber selected from the group consisting of Dacron (polyester), polyglycolic acid, polylactic acid, fluoropolymers, nylons, polyaramid fiber kevlar and silk chosen for thrombogenicity, human growth hormone, genetic material, antigens and hydrogels.

94. The three dimensional composite device of Claim 93, wherein at least a portion of said strand of therapeutic agent projects beyond the diameter of the remaining strands on said cable.

95. The three dimensional composite device of Claim 93, wherein said therapeutic agent comprises at least one component selected from the group consisting of hydrogel, collagen, and bio-absorbable polymers including lactic acids, glycolic acids and caprolactam.

96. The three dimensional composite device of Claim 81, wherein said outer cover comprises a sheath to constrain said strands of said micro-cable about a longitudinal axis.

97. The three dimensional composite device of Claim 81, wherein said outer cover comprises an outer sheath of material to provide bending stiffness and constrain said longitudinal strands about said longitudinal axis, said sheath being formed of a low friction material selected from the group consisting of a fluoropolymer and a heat shrinkable plastic tube.

98. The three dimensional composite device of Claim 96, wherein said sheath comprises a containment strand wound about said longitudinal strands.

99. The three dimensional composite device of Claim 96, wherein said sheath comprises a plurality of heat shrink plastic tubes placed to provide bending stiffness in said cable which varies with the position on said cable.

100. The three dimensional composite device of Claim 81, wherein said strands of the micro-cable are bundled by a plurality of bands disposed at intervals along said micro-cable to produce a composite banded cable.

101. The three dimensional composite device of Claim 100, wherein

said strands are laid parallel within the composite banded cable.

102. The three dimensional composite device of Claim 100, wherein said exterior wrapped cover is wound at varying intervals along the outside to provide variations in the torqueability and stiffness of the composite cable.

103. The three dimensional composite device of Claim 100, wherein the width of the outer cover is varied along the composite cable.

104. The three dimensional composite device of Claim 81, wherein said outer covering varies in cross section along its length to provide bending stiffness of said composite cable which varies along said composite cable.

105. The three dimensional composite device of Claim 81, wherein the number of strands and the degree to which they extend along said composite cable within the outer covering varies along said composite cable.

106. The three dimensional composite device of Claim 97, wherein outer covering comprises a plurality of layers formed of different materials in order to provide a graduated bending and stiffness characteristic over the length of the cable.

107. A device for use in interventional therapy and vascular surgery, adapted to be inserted into a portion of a vasculature, comprising:

a shape memory coil having an outer coil portion and an inner core portion, said shape memory coil having a collapsed primary coil configuration and an expanded secondary configuration with a three dimensional shape; and

a radiopaque strand extending through the core of the shape memory coil to provide a radiopaque marker of the deployed configuration of the device.

108. The device of Claim 107, wherein said shape memory coil comprises a multi-stranded coil having a plurality of flexible strands of a resilient

material.

109. The device of Claim 107, wherein said shape memory coil comprises a single stranded coil.

110. The device of Claim 109, wherein said single stranded coil comprises a nickel titanium alloy.

111. The device of Claim 109, wherein said single stranded coil comprises a shape memory polymer.

112. The device of Claim 107, wherein said radiopaque strand comprises a core strand having a plurality of intermittently spaced apart enlarged portions.

113. The device of Claim 112, wherein said enlarged portions comprise a radiopaque material selected from the group consisting of platinum and gold.

114. The device of Claim 112, wherein said enlarged portions comprise a plurality of beads of radiopaque material spaced apart and mounted on a core strand of material.

115. The device of Claim 114, wherein said beads comprise a radiopaque material selected from the group consisting of platinum, gold and tungsten.

116. The device of Claim 114, wherein at least one of said plurality of beads is bonded to a segment of the shape memory coil.

117. The device of Claim 114, wherein an end bead is bonded to a segment of the shape memory coil.

118. The device of Claim 112, wherein said enlarged portions comprise

a plurality of coils intermittently wound about and spaced apart on said core strand.

119. The device of Claim 118, wherein said core strand comprises a radiopaque material selected from the group consisting of platinum and gold.

120. The device of Claim 118, wherein said spaced apart coils comprise a radiopaque material selected from the group consisting of platinum and gold.

121. The device of Claim 112, wherein said core strand comprises a material selected from the group consisting of platinum, gold, a shape memory polymer having a glass transition temperature (T_g) below 25° C, a hydrogel, an amorphous gel, and a fiber.

122. An occlusive device for use in interventional therapy and vascular surgery, adapted to be inserted into a portion of a vasculature, said occlusive device comprising:

a plurality of coil arms formed of shape memory material having a collapsed primary coil configuration and a three dimensional, polyhedral expanded secondary configuration, said coil arms having inner and outer ends, said inner ends of said coil arms being connected together; and

a central coil body connected to said inner ends of said coil arms.

123. The occlusive device of Claim 122, wherein said plurality of coil arms further comprises at least four coil arms.

124. The occlusive device of Claim 122, wherein said plurality of coil arms comprise six radiating coil arms forming a hexahedral configuration.

125. The occlusive device of Claim 122, wherein said plurality of coil arms are formed from conically shaped coils each having an inner apical end, and said inner apical ends being connected to said central body, said conically shaped coils

having an expanding diameter as they radiate outward.

126. The occlusive device of Claim 123, wherein said central body comprises a central three dimensional coil connecting said inner ends of said at least four coil arms together.

127. The occlusive device of Claim 126, wherein said at least four coil arms comprise six radiating coil arms forming a hexahedral configuration.

128. The occlusive device of Claim 126, wherein said plurality of coil arms are formed from conically shaped coils each having an inner apical end, and said inner apical ends being connected to said central body, said conically shaped coils having an expanding diameter as they radiate outward.

129. The occlusive device of Claim 126, wherein said central three dimensional coil has a shape selected from the group consisting of spherical, rounded, and cubical shapes.

130. The occlusive device of Claim 126, wherein said central three dimensional coil is tetrahedral.

131. The occlusive device of Claim 130, wherein said at least four coil arms comprise four radiating coil arms forming a tetrahedral configuration.

132. The occlusive device of Claim 127, wherein said central three dimensional coil is pentahedral.

133. The occlusive device of Claim 132, wherein said at least four coil arms comprise five radiating coil arms forming a pentahedral configuration.

134. The occlusive device of Claim 123, wherein said at least four coil

arms comprise at least one multi-stranded micro-cable having a plurality of flexible strands of a resilient material, with at least one radiopaque strand to provide a radiopaque marker.

135. The occlusive device of Claim 123, wherein said at least four coil arms comprise at least one secondary wind coil of a primary helical wind coil.

136. The occlusive device of Claim 126, wherein said central three dimensional coil comprises a secondary wind coil of a primary helical wind coil.

137. A device for use in interventional therapy and vascular surgery, adapted to be inserted into a portion of a vasculature, comprising:

a coil having a collapsed primary coil configuration and an expanded secondary configuration with a three dimensional shape, said coil being formed from at least one flexible strand of a resilient material; and

at least one therapeutic fiber woven into the coil to enhance treatment of the site after placement of the device.

138. The device of Claim 137 wherein said at least one flexible strand comprises a plurality of flexible strands of a resilient material, and at least one radiopaque strand to provide a radiopaque marker of the deployed configuration of the device.

139. The device of Claim 137 wherein said at least one therapeutic fiber is woven about adjacent loops of the coil.

140. The device of Claim 137 wherein said at least one therapeutic fiber is woven about non-adjacent loops of the coil.

141. The device of Claim 138, wherein said at least one therapeutic fiber is woven through the multiple strands of adjacent loops of the coil.

142. The device of Claim 138, wherein said at least one therapeutic fiber is woven through the multiple strands of non-adjacent loops of the coil.

143. The device of Claim 137 wherein said at least one therapeutic fiber is made of a material that will provide a timed release of a therapeutic agent intended to become active after placement of the device.

144. The device of Claim 143, wherein said therapeutic agent selected from the group consisting of human growth hormone, collagen, a modified polymer with growth factor, genetic material for gene therapy, and antigens.

145. The device of Claim 143, wherein said at least one therapeutic fiber comprises a plurality of therapeutic fibers, with different fibers provided in the coil with different therapeutic agents to provide different therapies.

146. The device of Claim 137 wherein said coil secondary three dimensional configuration is helical.

147. The device of Claim 137 wherein said at least on flexible strand comprises a nickel-titanium alloy.